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# ENVIRONMENTAL ASSESSMENT

*Bank Stabilization along St. Jones River*

**DOVER AIR FORCE BASE, DELAWARE**

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**December 2008**

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**FINDING OF NO SIGNIFICANT IMPACT  
FINDING OF NO PRACTICABLE ALTERNATIVE  
Environmental Assessment  
Bank Stabilization along St. Jones River  
Dover Air Force Base, Delaware**

**Background**

The Mission Support Group, Civil Engineering Squadron, Asset Management Flight (CES/CEA) at Dover Air Force Base, Delaware (Dover AFB), proposes to provide stabilization to the river bank associated with the St. Jones River along the property owned by Dover AFB. Upon stabilization, an educational/recreational walking trail would be installed allowing base residents and residents of Kent County to traverse the area to enjoy the ambience.

The purpose of the action is to provide bank stabilization along the St. Jones River which traverses the western most portion of property owned by Dover AFB. Bank stabilization is needed to satisfy three environmental initiatives: (1) reduce sediment and erosion runoff into the St. Jones River, (2) prevent erosion of a former landfill (identified as LF 26) and (3) prevent erosion and subsequent deterioration of cultural resources sites 7K-D-2, 7K-D-5 and 7K-D-126.

Pursuant to the National Environmental Policy Act (NEPA), the Council of Environmental Quality (CEQ) implementing regulations, (40 Code of Federal Regulations (CFR) 1500-1508) and the Air Force Environmental Impact Analysis Process (32 CFR 989), the Air Force has prepared an Environmental Assessment (EA) analyzing the potential environmental impacts of the Proposed Action to provide stabilization for the river banking of the St. Jones River along Dover AFB property. The EA evaluated potential impacts from the Proposed Action, Alternative 1, and No Action Alternative. Cumulative impacts were also evaluated.

**Proposed Action**

The Proposed Action is to combine soft and hard stabilization technologies to minimize subsequent erosion to the St. Jones River banking along Dover AFB property. The St. Jones River traverses to the west of the former Eagle Heights Military Family Housing (MFH) area which has been recently privatized. The Proposed Action would provide approximately 3,000 linear feet of banking with stabilization. Current conditions have shown significant erosion due to minimal or no vegetation along the bank.

A combination of soft and hard stabilization technologies is favored due to strong storm surges which would undermine certain technologies at various key points along the project, combined with initial regulator input indicating the denial of permits if the Proposed Action was all hard technologies.

The Proposed Action includes bank stabilization to be funded by Dover AFB and the installation of a walking path to be funded by Kent County officials in conjunction with the completion of the Dover AFB bank stabilization project. Dover AFB permit applications will reference the installation of a walking path; therefore, Kent County will not be required to obtain the same series of permits.

the State of Delaware, Department of Natural Resources and Environmental Control, Wetlands Division to get an approved wetland permit. A permit application for a USACE Nationwide Permit and a State of Delaware wetlands permit were submitted in April 2009. The State of Delaware permit was issued in November 2009, and the USACE permit is issued in February 2010. The implementation of the Proposed Action will have no net decrease to wetlands, and no additional wetlands mitigation measures are expected. The Proposed Action also occurs within the 100-year floodplain with no impact on the ability of the river to manage water associated with the 100-year storm.

### **Geology and Soils**

Implementing the Proposed Action, would not significantly affect geologic features underlying Dover AFB. Ground disturbance would occur during construction along the banking of the St. Jones River. Construction activities involving ground disturbances would include grading and clearing; however, disturbances would not occur at depths that could potentially impact aquifer recharge zones.

Under the Proposed Action, soils would be disturbed during construction activities on approximately 3.5 acres of undeveloped land. However, BMPs would be implemented during construction to minimize impacts to soils associated with grading and clearing activities. Therefore, only temporary and minor impacts to soils would be expected, and no cumulative impacts would be expected.

### **Socioeconomics and Environmental Justice**

Implementing the Proposed Action would not result in significant impacts on the demographics, employment, or income potential in the region of influence (ROI). ROI is not considered an area with a concentrated minority population or poverty area; therefore, there are no environmental justice concerns. The economic benefits from construction activities would be minor and short-term compared to the regional economic generation and have no anticipated impacts to the social or economic characteristics of ROI. No cumulative impacts would be expected.

### **Hazardous Materials and Wastes**

Implementing the Proposed Action could generate hazardous wastes and/or consume hazardous materials. The potential impacts would be short-term and lasting approximately 6 months during construction activities. Most of the materials used in construction would typically be consumed in their entirety, and very little waste would be generated for disposal. As a result, no large amounts of construction-related hazardous materials would be expected, and any hazardous wastes generated during the activities would be disposed of in accordance with applicable federal, state, and local regulations.

There may be residual contaminants in the soil that may not allow for unrestricted disposal of excavated soils. These contaminants may include pesticides such as chlordane and heptachlor, several semi-volatile organic compounds, and metals such as lead and chromium. Any excavated soil that is not suitable for use on site would be stockpiled on site and tested to determine proper disposal requirements. Each stockpile of soil would be analyzed for the following items:

**Irreversible and Irretrievable Commitment of Resources**

There would be no irretrievable commitment of resources from the Proposed Action. Use of fuel for operation of construction equipment and human labor represent the only irreversible commitment of resources.

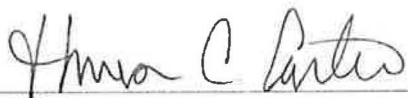
**FINDING OF NO SIGNIFICANT IMPACT**

Based upon my review of the facts and analyses contained in the attached EA, I conclude that the Proposed Action will not have a significant environmental impact, either directly or cumulatively in conjunction with other projects at Dover AFB. Accordingly, the requirements of NEPA, CEQ regulations and the Air Force Environmental Impact Analysis Process are fulfilled, and the preparation of an Environmental Impact Statement is not required.

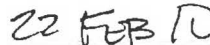
**FINDING OF NO PRACTICABLE ALTERNATIVE**

Pursuant to Executive Order 11990, Protection of Wetlands, and Executive Order 11988, Floodplain Management, it is determined that there is no practicable alternative to the proposed stabilization in wetlands, and the Proposed Action includes all practicable measures to minimize harm to wetlands that may result from such use. Compliance with the selection criteria for alternatives would not be possible without impacting the banking of the St. Jones River.

Signed:



THERESA C. CARTER, Colonel, USAF  
Director, Installations & Mission Support



Date

Attachment:

EA



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**ENVIRONMENTAL ASSESSMENT  
Bank Stabilization along St. Jones River**

**DOVER AIR FORCE BASE, DELAWARE**

**Lead Agency:** Department of the Air Force

**Proposed Action:** Provide bank stabilization along the St. Jones River adjacent to Dover AFB property immediately west of the Eagle Heights housing area.

**Written comments and inquiries regarding this document should be directed to:** Mr. Steven Seip, 436 CES/CEAN, 600 Chevron Avenue, Dover Air Force Base, DE 19902-5600, (302) 677-6839.

**Report Designation:** Environmental Assessment (EA)

**Abstract:** The Proposed Action is to combine soft and hard stabilization technologies to minimize subsequent erosion to the St. Jones River banking along Dover AFB property. The St. Jones River traverses to the west of the former Eagle Heights MFH area, which has been recently privatized. The proposed action would provide the approximately 3,000 linear feet of banking with stabilization. Current conditions have shown significant erosion due to minimal or no vegetation along the bank. The proposed action includes bank stabilization to be funded by Dover AFB and the installation of a walking path to be funded by Kent County officials in conjunction with the completion of the Dover AFB bank stabilization project. Dover AFB permit applications will reference the installation of a walking path to assist Kent County in not requiring them to obtain the same series of permits.

The No Action Alternative and an alternative consisting of only soft stabilization technologies were also analyzed in this environmental assessment.



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**ACRONYMS AND ABBREVIATIONS**

436 AW	436th Airlift Wing
AFB	Air Force Base
Air Force	United States Air Force
BEA	Bureau of Economic Analysis
BMPs	best management practices
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES/CEV	Civil Engineering Squadron/Environmental
CFR	Code of Federal Regulations
CO	carbon monoxide
CWA	Clean Water Act
DNREC	Department of Natural Resources and Environmental Compliance
DSWA	Delaware Solid Waste Authority
DoD	Department of Defense
EA	environmental assessment
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act
ERP	Environmental Restoration Program
FONPA	finding of no practicable alternative
FONSI	finding of no significant impact
FY	fiscal year
MDG/MDSS	Medical Group, Medical Support Squadron
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO <sub>x</sub>	nitrous oxides
NPDES	National Pollutant Discharge and Elimination System
O <sub>3</sub>	ozone
Pb	lead
PM <sub>10</sub>	particulate matter measuring less than 10 microns in diameter
POV	personally owned vehicle
RCRA	Resource Conservation and Recovery Act
ROI	region of influence
SARA	Superfund Amendments and Reauthorization Act
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SR	State Route
UFC	Unified Facilities Criteria
USACE	U.S. Army Corps of Engineers
USC	United States Code
USCB	U.S. Census Bureau
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound



## **1.0 PURPOSE AND NEED FOR THE ACTION**

### **1.1 Introduction and Background**

The Mission Support Group, Civil Engineering Squadron, Asset Management Flight (CES/CEA) at Dover Air Force Base, Delaware (Dover AFB) proposes to provide stabilization to the river bank associated with the St. Jones River along the property owned by Dover AFB. Upon stabilization, an educational/recreational walking trail would be installed allowing base residents and residents of Kent County to traverse the areas reclaimed under the Proposed Action. This walking trail would increase the quality of life for families living in the housing areas. Security issues would be incorporated in to the proposed action so no deviations from current security practices would occur.

The purpose of the action is to provide bank stabilization along the St. Jones River which traverses the western most portion of property owned by Dover AFB. Bank stabilization is needed to satisfy three environmental initiatives: (1) reduce sediment and erosion runoff in to the St. Jones River, (2) prevent erosion of a former landfill (identified as LF 26) and (3) to prevent erosion and subsequent deterioration of cultural resources sites 7K-D-2, 7K-D-5 and 7K-D-126. This Environmental Assessment (EA) assesses the potential impacts associated with the action.

Since its beginning in 1941, Dover AFB has expanded its airlift mission capabilities and is the home of a combination of C-5 and C-17 aircraft. Dover AFB is in Kent County, Delaware (Figure 1-1). The host unit is the 436 Airlift Wing (436 AW), which provides command and control, and associated support functions to airmen and aircraft conducting a global airlift mission. Aircraft and aircrews assigned to Dover AFB provide worldwide movement of cargo and personnel on time-sensitive airlift missions. Aircraft assigned to Dover AFB comprise approximately 25 percent of the airlift capability of the U.S. Air Force (Lauria 2003).

Dover AFB is the largest and busiest aerial port in the Department of Defense (DoD) and houses the only joint services mortuary on the East Coast. Dover AFB employs approximately 6,600 civilian and military personnel. Dover AFB has an economic impact greater than \$470 million annually on the Delaware economy and is considered Delaware's third largest industry (City of Dover 2003).

**1.2 Past, Present, and Reasonably Foreseeable Actions**

Planned activities for fiscal years (FY) 2009-2010 included the demolition of approximately 151,065 square feet and the construction of 284,225 square feet of buildings and impervious surfaces. Cumulative effects of past, present, and future actions were considered in the scoping process for the Proposed Action to avoid long-term impacts to the natural and man-made environments.



**Figure 1-1. General Location of Dover Air Force Base.**



### **1.3 Purpose and Need for the Proposed Action**

The purpose of the action is to provide stabilization of the St. Jones River bank traversing Dover AFB property. The proposed stabilization will consist of combined soft (vegetation) and hard (rip rap) solutions to minimize erosion to reduce entry of sediments into the St. Jones River, reducing potential erosion from LF26 thus eliminating any associated contaminants from entering the river and to protect the cultural resources sites by not allowing erosion to reduce the integrity of any remaining artifacts still not identified. Upon conclusion of Air Force funded stabilization, Kent County officials are proposing to install an educational/recreational walking path to allow Dover AFB and local residents the ability to interact with the local habitat.

### **1.4 Scope of This Environmental Assessment**

This EA was prepared in accordance with the National Environmental Policy Act (NEPA) (Public Law 91-190, 42 United States Code [USC] §4321 et seq.), Department of the Air Force Regulation, Environmental Impact Analysis Process (32 Code of Federal Regulations [CFR] Part 989), and the Council on Environmental Quality (CEQ) implementing regulations (40 CFR §§1500-1508). The intent of NEPA is to protect, restore and enhance the human environment through well-informed Federal decisions. A variety of laws, regulations, and Executive Orders (EO) apply to actions undertaken by federal agencies and form the basis of the analyses presented in this EA. These include but are not limited to the following:

- Endangered Species Act;
- National Historic Preservation Act (NHPA);
- Clean Air Act (CAA);
- Clean Water Act (CWA);
- EO 11514, Protection and Enhancement of Environmental Quality;
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations; and
- EO 11990, Protection of Wetlands.

NEPA was signed into law in 1970 to ensure careful consideration of environmental aspects of Proposed Actions in Federal decision-making processes, and to make environmental information

available to decision-makers and the public before decisions are made and actions are taken. It establishes a process for consideration of the potential effects arising from a federal action by requiring that analysis and disclosure of potential effects occur prior to the undertaking of actions with the potential to have a significant effect on the environment.

This EA describes the baseline conditions (affected environment) at Dover AFB and assesses the potential environmental impacts of the Proposed Action and alternatives on the following resource areas: air quality, transportation, water resources including wetlands, geology and soils, socioeconomics and environmental justice, and hazardous materials and wastes. CEQ regulations (§1501.7) state that the lead agency shall identify and eliminate from detailed study the issues which are not important or which have been covered by prior environmental review, narrowing the discussion of these issues in the document to a brief presentation of the impacts of the proposed action and alternatives on the human environment. In accordance with §1501.7, only those resource areas that are potentially affected by the action were carried forward in the analysis. Resources or issues that were eliminated from further consideration in the analysis include land use, noise, and airspace.

The decision to be made, after a review of the analysis presented in this EA, would be whether to issue a finding of no significant impact (FONSI) and/or finding of no practicable alternative (FONPA) or to proceed with development of an environmental impact statement to further quantify and detail the potentially significant impacts resulting from implementation of the Proposed Action or alternatives. While this EA provides information with which to make better decisions regarding the Proposed Action, it does not imply project approval or authorization.

## **1.5 Organization of This Environmental Assessment**

This EA follows the format established in 32 CFR §989, the U.S. Air Force guidelines for implementing the CEQ regulations (40 CFR §1502). Section 1 presents the purpose and need for the action. The alternatives, including the Proposed Action are presented in Section 2. The affected environment and environmental consequences are presented in Sections 3 and 4, respectively. A list of the document preparers and contributors is presented in Section 5. The persons and agencies contacted in the preparation of this EA, brief summary of comments received, and responses to those comments are presented in Section 6. The references used in

## PURPOSE AND NEED FOR THE ACTION

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preparation of this EA are presented in Section 7. A list of acronyms and abbreviations is provided in Section 8. The appendices provide supporting documents used in preparation of this EA.

## **2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION**

This section of the EA describes the Proposed Action and alternatives to the proposed action, including the No Action Alternative analyzed in this EA. It also identifies the alternatives that Dover AFB has eliminated from detailed analysis. Alternatives carried forward for analysis in this EA were identified as meeting the underlying purpose and need for the action. The No Action Alternative is carried forward for analysis as a baseline to which all other alternatives are compared in accordance with NEPA §1502.14(d). This section concludes with a comparative summary of the Proposed Action and alternatives.

### **2.1 Identification of Selection Criteria**

In an effort to satisfy the purpose and need for the Proposed Action, several selection criteria were developed to compare and contrast alternative ways of fulfilling the objectives of the Proposed Action in accordance with 32 CFR §989.8(c). Those specific criteria include:

- 1. Alternatives Must Be Permittable.** The design of the bank stabilization must be able to obtain approval/permits from all perspective regulators to include the U.S. Army Corps of Engineers, various applicable sections of the Delaware Department of Natural Resources and Environmental Control (DNREC), U.S. Fish and Wildlife, and the Delaware State Historic Preservation Office (SHPO).
- 2. Alternatives Must Be Financially Reasonable.** The design of the bank stabilization must be within financial availability for funding (i.e. no availability of MILCON funds).
- 3. Alternatives Must Be In Accordance with Security Procedures.** Due to the presence of privatized housing units and local schools, the design of the bank stabilization and the subsequent walking path must be conducted in accordance with all security procedures.
- 4. Minimize environmental impacts.** To the greatest extent possible, the design and implementation of the bank stabilization should avoid sites with prior contamination, and minimize impacts to cultural resources, and sensitive habitats such as endangered species habitats and wetlands.

## **2.2 Description of the Proposed Action**

The Proposed Action is to combine soft and hard stabilization technologies to minimize subsequent erosion to the St. Jones River banking along Dover AFB property. The St. Jones River traverses to the west of the former Eagle Heights MFH area, which has been recently privatized. The proposed action would provide the approximately 3,000 linear feet of banking with stabilization. Current conditions have shown significant erosion due to minimal or no vegetation along the bank.

A combination of soft and hard stabilization technologies is favored due to strong storm surges which would undermine certain technologies at various key points along the project combined with initial regulator input indicating the denial of permits if the proposed action was all hard technologies.

The proposed action includes bank stabilization to be funded by Dover AFB and the installation of a walking path to be funded by Kent County officials in conjunction with the completion of the Dover AFB bank stabilization project. Dover AFB permit applications will reference the installation of a walking path to assist Kent County in not requiring them to obtain the same series of permits.



**Figure 2-1. Proposed Action for the Bank Stabilization of St. Jones River.**

### **2.2.1 Construction Activities**

The installation of the proposed action would be conducted in phases of construction pending the availability of funds. The proposed construction activities would require shallow excavation in to the St. Jones River, in the vicinity of an old landfill and in to archeological sites. Each phase of construction will require proper coordination with associated regulatory agencies and interested parties to ensure all concerns are addressed and mitigated.

Actual construction activities will take extreme caution not to disturb any environmentally sensitive areas that were previously identified and will cease activities upon discovery of items that require expert evaluation, characterization and disposal.

### **2.2.2 Environmental Controls**

Prior to initiation of construction activities, plans and documents would be prepared by the contractor to provide environmental controls. These plans and documents would be submitted to the contracting officer for review and approval. Environmental measures under the Proposed Action would be designed to control erosion and sedimentation, stormwater runoff, and protect of wetlands. All construction debris would be recycled or disposed of at an approved landfill in accordance with all applicable federal, state, and local laws and regulations.

To reduce impacts to local and regional air quality, best management practices (BMPs), such as proper maintenance of construction vehicles to reduce combustive emissions, limiting the size of the disturbance area, and watering exposed soils at the beginning and end of daily construction activities, would be implemented to minimize or prevent fugitive dust emissions.

In accordance with Chapter 40, Title 7, Delaware Code, the State of Delaware, the Department of Natural Resources and Environmental Control (DNREC) Sediment and Stormwater Program manages the USEPA National Pollutant Discharge Elimination System (NPDES). Delaware requires that all construction sites greater than 5,000 square feet must submit and implement a Sediment and Stormwater Management Plan. This Plan requires a design report, all pertinent information from the Sediment and Stormwater Management Plan Checklist, completed Plan Checklist, project specifications, pre-application meeting, and weekly reviews by a Certified Construction Reviewer. The Erosion and Sediment Control portion of the Plan must include BMPs to reduce or eliminate the potential for erosion and sediment deposition from the construction activities. Prior to the start of construction activities, a notice of intent must be filed

with EPA prior to the start of activities. Additionally, in accordance with the Sediment and Stormwater Management guideline, post-construction BMPs may be required.

Dover AFB would apply for a wetlands permit through the Philadelphia District USACE, DNREC subaqueous permit, coordination with U.S. Fish and Wildlife and the Delaware SHPO. Dover AFB would include in the FONSI a statement of FONPA to construction in wetlands in accordance with EO 11990, Protection of Wetlands.

## **2.3 Alternatives to the Proposed Action**

### **2.3.1 No Action Alternative**

Although it would not satisfy the purpose and need for the action, a No Action Alternative has been carried forward as the baseline against which potential impacts arising from the action alternatives can be measured. The No Action Alternative is carried forward for analysis in accordance with NEPA §1502.14 (d). Under the No Action Alternative, erosion will continue to occur along the banking of the St. Jones River allowing sediment to pollute the river and allowing deterioration of integrity of cultural resource sites and eventually allowing pollutants and debris from landfill to enter the St. Jones River.

### **2.3.2 Alternative 1 – Bank Stabilization with all Soft Technologies**

Alternative 1 to the Proposed Action would provide for stabilization of the St. Jones River as it traverses Dover AFB property. Although a preferred option for some of the regulators involved with permitting, this alternative will not provide a long term solution to erosion. Strong storm surges at key locations of bank would destroy stabilization and require replacement thus returning certain areas to pre-stabilization conditions defeating the project. Due to geographic location, both hurricanes and tropical storms have the potential to impact the St. Jones River annually. If alternative is selected, replacement of soft vegetation in locations along the St. Jones could occur within first year of stabilization.



### **2.3.3 Alternatives Eliminated from Detailed Analysis**

Unlike Alternative 1, 436 CES/CEA considered the implementation of all hard technologies such as riprap and gabions along the impacted 3,000 linear feet of banking. However, cost and regulator input eliminated this alternative from discussion. When project was initially discussed with DNREC and COE personnel, Dover AFB was told that obtaining a permit to install all hard technologies would not be an option. Combined the permitting issue with increased costs to install, this alternative was eliminated.

### **2.4 Resources or Issues Eliminated From Detailed Analysis in This Environmental Assessment**

CEQ regulations (§1501.7) state that the lead agency shall identify and eliminate from detailed study the issues which are not important or which have been covered by prior environmental review, narrowing the discussion of these issues in the document to a brief presentation of why they would not have a dramatic effect on the human environment. In accordance with §1501.7, resources or issues eliminated from detailed analysis include: land use, noise, and airspace.

#### **2.4.1 Land Use**

Land use describes the activities that take place in a particular area and generally refers to human modification and occupation of land, usually for residential or commercial purposes. The Proposed Action or alternatives would be consistent with present and foreseeable land use patterns at Dover AFB in accordance with its General Plan. The Proposed Action would support the principal land use of the site and would not change the existing land use. Therefore, this resource has been eliminated from detailed analysis in this EA.

#### **2.4.2 Noise**

Noise is defined as any sound that is undesirable because it interferes with communication, intense enough to damage hearing, or is otherwise intrusive. The proposed implementation of the bank stabilization would be short term and not be a significant contributor to the existing noise environment compared to C-5 and C-17 aircraft based at Dover AFB and any transient aircraft that visit the base. The use of standard operating procedures for minimizing noise such as operation during work hours and using mufflers on equipment would be mandated for the Proposed Action. Implementing the Proposed Action or alternatives would not alter ambient

noise levels at or adjacent to the project site. Therefore, this issue has been eliminated from detailed analysis in this EA.

### 2.4.3     **Airspace**

Implementing the Proposed Action or alternatives would not alter the airspace of aircraft operations at Dover AFB. Transport of materials and equipment for the Proposed Action would not involve aircraft operations. Therefore, this issue has been eliminated from detailed analysis in this EA.

## 2.5       **Comparison of Alternatives**

Table 2-1 provides a summary comparison of the alternatives as they relate to the alternative selection criteria presented in Section 2.1. This table indicates that the Proposed Action and Alternative 1 would meet the established purpose and need for the action. However the Proposed Action would provide a greater benefit because of long term stabilization than Alternative 1. The installation of soft stabilization technologies would not prevent high velocity and scouring areas from being destroyed during storm surges. The No Action Alternative is carried forward as a baseline for analysis of the action alternatives.

**Table 2-1.     Summary Comparison of Alternatives**

<b>Alternative Selection Criteria</b>	<b>Alternatives</b>		
	<b>Proposed Action</b>	<b>Alternative 1</b>	<b>No Action</b>
Regulator Permits	Yes	Yes	Yes
Financially Reasonable	Yes	No	Yes
Security Procedures	Yes	Yes	Yes
Minimize environmental impacts	Yes	No	No

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### **3.0 AFFECTED ENVIRONMENT**

This section of the EA describes the relevant environmental conditions at Dover AFB for resources that would be potentially affected by implementation of the Proposed Action or one of the alternatives. Although the region of influence (ROI) or the expected geographic scope of potential impacts includes all of Dover AFB, the actual limit of disturbance for the Proposed Action would be approximately 3,000 linear feet of banking associated with the St. Jones River as it traverses Dover AFB property. In compliance with guidelines contained in NEPA, the CEQ regulations, and 32 CFR §989, the description of the affected environment focuses on those resources potentially subject to impacts.

#### **3.1 Air Quality**

The CAA (42 USC 7401-7671q), as amended, gives the USEPA the responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR §50) that set safe concentration levels for six criteria pollutants: particulate matter measuring less than 10 microns in diameter (PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), nitrous oxides (NO<sub>x</sub>), ozone (O<sub>3</sub>), and lead (Pb). Each state has the authority to adopt standards stricter than those established under the federal program; however, Delaware accepts the federal standards (Table 3-1).

Primary NAAQS are established to protect public health, and secondary standards provide protection for the public welfare, which includes wildlife, climate, transportation, and economic values. Areas that violate air quality standards are designated as “nonattainment” areas, and areas that comply with air quality standards are designated “attainment” areas for the relevant pollutants.

In areas currently designated as being in nonattainment, federal agencies are required to determine whether their Proposed Action would increase emissions of criteria pollutants above threshold levels (40 CFR §93.150–93.160). To ensure that federal actions do not interfere with a state’s timely attainment of the NAAQS, the CAA requires that federal agencies demonstrate that their actions conducted in nonattainment and maintenance areas conform to the purposes of the State Implementation Plan (SIP). According to the implementing regulation, promulgated by the USEPA, proposed federal actions must be specifically identified in the SIP, must have minor

emissions below threshold levels identified in the regulations, or must offset any resulting increases in emissions.

**Table 3-1. National Ambient Air Quality Standards**

Air Pollutant	Averaging Time	NAAQS	
		Primary	Secondary
CO	1-hour	35 ppm	35 ppm
	8-hour	9 ppm	9 ppm
NO <sub>x</sub>	Annual	0.053 ppm	0.053 ppm
	3-hour	-	0.50 ppm
SO <sub>2</sub>	24-hour	0.14 ppm	-
	Annual	0.03 ppm	-
PM <sub>10</sub>	24-hour	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
	Annual	50 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>
O <sub>3</sub>	1-hour	0.12 ppm	0.12 ppm
	8-hour	0.08 ppm	0.08 ppm
Pb	Quarterly average	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>

ppm = parts per million

µg/m<sup>3</sup> = micrograms per cubic meter

Source: USEPA 2005a

The ROI for air quality impacts for the action would be the area immediately surrounding Dover AFB. For analysis purposes, the emissions produced for the Proposed Action are compared to local data and implementation plans in Kent County, Delaware. Under the CAA, Kent County is classified as a severe nonattainment area for ground-level O<sub>3</sub> with respect to the 1-hour NAAQS and moderate nonattainment with respect to the 8-hour NAAQS (USEPA 2005b).

### 3.2 Transportation

Transportation in this EA refers to the roadway systems that enable persons and goods to move about on Dover AFB and in the vicinity. The number of vehicles that can pass over a given section of roadway during a specified period generally measures roadway capacity. This capacity is usually considered in terms of levels of service, which is a qualitative measure describing operational conditions within a traffic stream; it is described in terms of speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety.

The upgrade of U.S. 113, which was part of the construction for State Route (SR) 1 from the New Castle County area to SR-9 along the southern boundary of Dover AFB, included a new

overpass that provides direct access to the Main Gate. SR-10 provides direct access to the North Gate from the west. The surrounding highway network is adequate to handle the present and prospective transportation needs of Dover AFB. The Dover AFB roadway system safely handles and distributes vehicular movements with a minimum amount of congestion and delay. This includes traffic movements onto and off the base as well as movement within the base. Atlantic Street is the major collector road. It handles a significant portion of all personal owned vehicles and tractor-trailers that enter the base through the North Gate. The construction of a walking path by Kent County in and around Dover AFB has allowed for increased pedestrian traffic as well as recreational activities. The addition of the pathway associated with this portion of the project will provide a small loop allowing those who are not interested in walking the entire trail can utilize a small subsection.

### **3.3 Water Resources**

Water resources for this project include groundwater, stormwater management, wetlands and the 100 year floodplain.

#### **3.3.1 Groundwater**

Shallow groundwater at Dover AFB is found in the Columbia Aquifer. The Frederica, Cheswold, and Piney Point aquifers occur but are not shallow (Dover AFB 2001). The unconfined Columbia Aquifer is the uppermost aquifer beneath Dover AFB and holds the water table that ranges from 70 feet below ground surface to within a few feet near the St. Jones River. The groundwater generally flows southwest toward the St. Jones River and its tributaries. Periodic drying of the drainage ditch through the project site indicates that the bottom elevation is above the high water table.

#### **3.3.2 Stormwater Management**

The St. Jones River flows along the western boundary of Dover AFB. Pipe Elm Creek of the Little River flows through the northern portion of the base. A drainage system consisting of ditches and below-ground pipes diverts surface-water runoff from Dover AFB into these two rivers (Dover AFB 2001). A wet meadow was constructed in coordination with the USACE in the golf course in 1999 as wetland mitigation for the installation of stormwater quality control devices for Outfalls 003 and 007. This treatment wetland processes stormwater in the Outfall 007 watershed, including drainage through the wetland ditch in the proposed project site.

Construction projects must follow the sediment and erosion control permit process established at Dover AFB. This process requires the construction contractor to obtain a permit through the Environmental Protection Agency.

### **3.3.3 Wetlands**

The Federal Water Pollution Control Act, as amended by the CWA of 1977, was enacted to protect these valuable, irreplaceable resources. The Water Pollution Prevention and Control Act (33 USC 26), also known as the CWA Amendments, set the national policy objective to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.

Jurisdictional waters, including surface water and wetlands as defined in 33 CFR §328.3, are regulated under Sections 401 and 404 of the CWA and Section 10 of the Rivers and Harbors Act. Wetlands are those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for saturated soil (Environmental Laboratory 1987). The entire river banks connecting the St. Jones River and Dover AFB is considered wetlands and totals 2.04 acres as indicated in the 2004 wetlands survey, which was approved by the COE.

### **3.3.4 Floodplains**

Dover AFB does contain some areas located within the 100-year flood plain. These areas include the drainage swale at outfall 003 on the eastern portion of the facility and the end of the storm-water quality control device located on the golf course which discharges Dover AFB via outfall 007. Also located in the 100-year floodplain is the St. Jones River banking associated with the proposed action.

## **3.4 Geology and Soils**

Geology and soils in this EA include the physiographic and topographic features that formed the soil types in the vicinity. Kent County lies in the Coastal Plain Plateau Province, which is lowland that borders the Atlantic Ocean (Dover AFB 2001). The Coastal Plain Plateau Province is generally flat, seaward sloping lowland with some moderately steep local relief. The Coastal Plain is generally underlain by semiconsolidated to unconsolidated sediments that consist of silt, clay, and sand with some gravel and lignite.

The topography is nearly level to gently sloping. The soil in the proposed project site is classified as urban land complex. The soil type is Sassafras Loam, two to five percent slopes. All areas of this soil type are prime farmland; however, the dedicated land use of the site precludes applicability of this designation. This soil type is well drained and has very high available water capacity. This soil type is not flooded and is not ponded. The water table is deeper than six feet. Sassafras Loam is not a hydric soil (University of Delaware 2005).

### **3.5 Socioeconomics and Environmental Justice**

Socioeconomics is the study of the prevailing population, income, employment, and housing characteristics of a community or area of interest. Environmental Justice refers to an ongoing effort by the federal government to assure decision makers that any adverse effects associated with proposed actions would not disproportionately be borne by populations of special concern. EO 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations issued in 1994, tasks federal agencies with the responsibility to provide this assurance as part of NEPA decision making assessments. If minority or low-income groups were to experience a disproportionate adverse effect from a proposed action, then avoidance or mitigation measures are to be taken. The ROI for the Proposed Action is Kent County, Delaware.

#### **3.5.1 Population and Demographics**

The population in Kent County increased approximately 14 percent between 1990 (110,993) and 2000 (126,697). The population of the census tract containing Dover AFB (Census Tract 411) declined approximately 30 percent between 1990 (5,488) and 2000 (3,849), which followed the trend observed in the immediately adjacent census tracts and block groups (U.S. Census Bureau [USCB] 1993, 2002).

The majority of the population in Kent County is White, non-Hispanic. The percent of minorities was 27.8 percent of the population, which falls below the threshold for a concentrated minority population. Census Tract 411 had a total minority population of 31.1 percent of the total population, which is also below the threshold for a concentrated minority population (USCB 2002).



### **3.5.2 Income and Employment**

The median household income increased 38.8 percent and 43.4 percent between 1990 and 2000 in Kent County and Census Tract 411, respectively (USCB 1993, 2002). Earnings data indicated that personal income in Kent County increased 65.2 percent between 1990 and 2000 to \$3.0 billion (Bureau of Economic Analysis [BEA] 2004a).

Total full-time and part-time employment increased approximately 23.8 percent in Kent County between 1990 and 2000 (BEA 2004b). The poverty rate decreased approximately 0.6 percent in Kent County to 10.7 percent between 1990 and 2000 (USCB 1993, 2002). The poverty rate also decreased in Census Tract 411 to 4.2 percent, a decline of 1.9 percent. These areas would not be considered concentrated poverty areas.

### **3.6 Hazardous Materials and Wastes**

Hazardous material is defined by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Solid Waste Disposal Act, and Emergency Planning and Community Right-to-Know Act (EPCRA) as a substance that, because of quantity, concentration, or physical or chemical characteristics, may present substantial danger to public health, welfare, or the environment. The term hazardous waste, as defined by the Resource Conservation and Recovery Act (RCRA), means any solid, liquid, contained gaseous or semisolid waste, or any combination of wastes that pose a substantive present or potential hazard to human health or the environment. Hazardous wastes must exhibit a characteristic of toxicity, reactivity, ignitibility, or corrosively, or be listed as a hazardous waste as indicated in 40 CFR §261 and §263, respectively.

CERCLA and the Superfund Amendments and Reauthorization Act (SARA) of 1986 authorize the USEPA to respond to spills and other releases of hazardous substances to the environment. It also authorizes the National Oil and Hazardous Substances Pollution Contingency Plan. Title III of SARA authorizes EPCRA, which requires facility operators with hazardous substances to prepare comprehensive emergency plans and to report accidental releases. EO 12856 (Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, August 1993) requires federal agencies to comply with the provisions of EPCRA.

The Proposed Action may require the use of small amounts of hazardous materials. Hazardous wastes may be generated during construction activities depending on characteristics of impacted

soil. Hazardous materials and wastes are managed at Dover AFB in accordance with applicable regulations and plans such as the Hazardous Material Plan and Spill Prevention, Control and Countermeasures Plan.

Through an August 1997 base-wide remedial investigation, 59 Environmental Restoration Program (ERP) sites were identified as having hazardous or potentially having hazardous contamination (Dover AFB 2005a). There is one ERP site in the vicinity of the proposed project site.

Site LF26 is located on the west side of the base at the edge of the St. Jones River behind the base housing area. The site is approximately 2 acres in size and was used in the early 1960s for the disposal of general refuse, clearance debris such as trees/branches, and construction rubble. Earlier, it had been a sand and gravel pit which was later filled with refuse to a depth of about 8 ft. When disposal activities ceased, the site was covered with local soil and seeded with grass. The site is currently maintained as grass-covered baseball playing fields. A Remedial Investigation was conducted at LF26 in 1993/1994 under the Air Force Installation Restoration Program. No removal or remedial actions have been conducted at this site. The human health risk assessment for this site identified no unacceptable risks from contaminants at the site. However, this conclusion is based on the assumption that land use at the site will be limited to industrial use or its current recreational use as ball fields. Thus, a limited response action was necessary to ensure the permanence and reliability of the land use assumptions.

In 2006, a Record of Decision (ROD) was signed by the Air Force and the Environmental Protection Agency for 21 sites, including LF26. The selected remedy for LF26 is Land Use Controls (LUCs). The LUCs provisions for LF26 as documented in the ROD are to:

- Restrict land use at LF26 to commercial/industrial uses or to its current recreational use as a baseball field.
- Prevent non-industrial exposure to landfill contents.

- Prevent drilling of wells or other ground-disturbing activities that could penetrate or otherwise disturb the landfill contents.
- Maintain the soil and grass cover at LF26 to prevent exposure to landfill contents.

In 2007, a routine survey noted that natural river erosion had caused exposure of some landfill contents at the edge of the St. Jones River. The river bank stabilization project will, in part, prevent further erosion into the landfill and repair the soil and vegetative cover over the exposed portion of the landfill.

### 3.7 Biological Resources

Biological resources typically evaluated in EAs include vegetation, wildlife, and protected species. According to the 1993 and 1998 Biological/Ecological Inventory and subsequent documentation from the Delaware Natural Heritage and Endangered Species Program (DNHP) dated 17 Jan 06, there are no known federally listed threatened or endangered species, federally listed or candidate species for animals or plants present at Dover AFB that require protection and/or management. The Delaware Division of Fish and Wildlife developed a Comprehensive Wildlife Conservation Strategy (CWCS) for determining animal Species of Greatest Conservation Need (SGCN). The SGCN list is divided into Tier 1 and Tier 2 criteria. Tier 1 species are those that are most in need of conservation action in order to sustain or restore their populations. They are the focus of the CWCS, which is based on analyzing threats to their populations and their habitats, and on developing conservation actions to eliminate, minimize or compensate for these threats.

Tier 2 species are also in need of conservation action, although not with the urgency of Tier 1 species. Their distribution across the landscape will help determine where CWCS conservation actions will be implemented on the ground. Following the SGCN list, the following Tier 1 and Tier 2 species have been identified on DAFB.

Species	Tier	Location
Mud Sunfish	1	Located in a mass of old discarded tires in the St. Jones River near MFH in the 1993 survey.

American Redstart	1	Observed in the woodlots in 1998
Broad-winged Hawk	1	A pair of broad-winged hawks and their nest were observed on the forest edge of during the summer of 1990.
Common Nighthawk	1	Observed on the base and Bergold Farm in the 1993 survey.
Loggerhead Shrike	1	Observed on the base and Bergold Farm in the 1993 survey.
Northern harrier	1	Observed using the base and Bergold Farm as foraging sites in 1998.
Short-eared Owl	1	Observed once in the autumn of 1990 in the same vicinity as the broad-winged hawks.
Upland Sandpiper	1	On 22 June 3002, three observers noted the presence of two adult and three juveniles near the intersection of Route 9 and Bergold Farm Road. The observers subsequently observed an additional two adults along Route 9 closer to Kitts Hummock Road. The observation of three juveniles is of particular interest since it was within the safe dates of 20 May and 25 June. A site visit by DNHP personnel was conducted on 16 July 2003 and even though no birds were spotted, the area was determined to have the appropriate habitat for breeding activities. Thus, the DNHP considers this a valid breeding record and the area of the Bergold Farm would be part of this record. In addition, this species has been observed at DAFB on six occasions between 1969 and 1984. The late dates of these sightings, and especially the nine individuals that occurred through the summer of 1983, indicated that the species was likely breeding on base. In 1990 and 1991 this large sandpiper was noted in groups of four to 29 individuals within the short grass airfield “triangle” in the southeast corner of the base.
Wood Thrush	1	Observed on the base in 1998.
Fourspine stickleback	2	Found along the Pipe Elm Branch, which feeds into the Delaware Bay in the 1993 survey
Black-and-white Warbler	2	Observed in the woodlots in 1998.
Bobolink	2	Spotted on Bergold Farm in 1998.
Grasshopper Sparrow	2	Observed on Bergold Farm 16 July 2003 and in 1998.
Great blue heron	2	Observed many times foraging along both Pipe Elm Branch and the St. Jones River in 1993.
Great Egret	2	Observed on the base in 1998.
Veery	2	Observed on the base in 1998.

Only the mud sunfish would be in the immediate area of the proposed action. However, follow-up discussions with regulators have indicated the mud sunfish may no longer be present in the vicinity of Dover AFB.

### **3.8 Coastal Zone Management**

Dover AFB is located in the coastal zone regulated by the Delaware Coastal Zone Act. Dover AFB's management procedures for compliance with the coastal zone regulations are as follows:

- CZM applicability will be reviewed during Environmental Impact Analysis Program evaluation. A majority of projects will have no impact on CZM regulations and a negative determination would not be required as outlined in 15 CFR 930.33. Therefore, only the type of projects described below will not meet the requirements of 15 CFR 930.33 and would require a submittal to DNREC.
- Projects involving work in wetlands (regardless of the necessity to obtain a Corps of Engineers permit) shall be reviewed for impact to the coastal zone and a negative impact determination or applicable submittal shall be prepared and submitted to DNREC.
- Projects involving work which would impact any federally endangered species or state species of concern shall be reviewed for impact to the coastal zone and a negative impact determination or applicable submittal shall be prepared and submitted to DNREC.

The proposed action of stabilizing the St. Jones River banking would require coordination with the regulators pertaining to Coastal Zone impact.

### **3.9 Cultural Resources**

The NHPA of 1966 (16 USC 470 et seq., as amended), the Archeological and Historic Preservation Act of 1974 (16 USC 469a et seq.), and the Archeological Resources Protection Act of 1979 (16 USC 470aa-470ll) are designed to ensure adequate consideration of the values of historic properties in carrying out federal activities and to attempt to identify and mitigate impacts to significant historic properties. Historic resources include buildings, structures,

objects, landscapes, and archeological sites, as well as places of importance to a culture or community for reasons of history, religion, or science.

As outlined in the Dover AFB Integrated Cultural Resources Management Plan, there are three sites in the vicinity of the St. Jones River bank area. Two of those three are within the proposed area of stabilization. Excerpts from the Cultural Resources Management Plan are provided below.

### **3.9.1 7K-D-2.**

This site was recorded in 1965. When the National Park Service (NPS) performed the archeological assessment of the base in 1985, this site was listed by the state as destroyed. The NPS conducted limited testing on a portion of 7K-D-2 in 1991 while testing to see if 7K-D-1 extended onto the base. However, the testing in 1991 found evidence of the site, and the NPS recommended the historic component of the site as potentially eligible for the NRHP. The present survey found no further evidence of Site 7K-D-2 beyond the boundaries proposed by the NPS. No further work is recommended outside the proposed site boundaries away from the St. Jones River. Further fieldwork will be necessary to determine the extent of the site along the St. Jones River, and the boundary between Sites 7K-D-2 and 7K-D-26.

### **3.9.2 7K-D-5.**

Site 7K-D-5 is adjacent to the St. Jones River in the southwestern corner of the base. Data regarding the nature of the site, the period(s) of occupation, etc. are not available on the Delaware state site form. The form merely indicates that the site is prehistoric and that the site was destroyed by 1965.

Testing in the vicinity of Site 7K-D-5 was accomplished through the systematic excavation of standard test pits. Intact, artifact bearing soils were found only at the southeastern periphery of base property near the St. Jones River, and within the golf course in the vicinity of the few trees that predate the course. Despite the apparent lack of integrity of the site, it is possible that some significant data still remains in portions of the site.

Site 7K-D-5 is located outside of the area proposed for bank stabilization and will not be discussed further.

### **3.9.3 7K-D-26.**

This site was recorded in 1972, and is located on the bank of the St. Jones River. Site 7K-D-26 was nominated to the National Register in 1985, at the same time as the neighboring Carey Farm site. Due to insufficient information, it was not accepted onto the register (NPS 1985). On 11 April 1984, in a letter to the Base Civil Engineer, the SHPO expressed the opinion that due to erosion from river meandering, Site 7K-D-26 was not eligible for the NRHP. However, in their archeological assessment of the base, the NPS recommended that the site be evaluated to determine its eligibility (NPS 1985). The NPS tested a portion of this site along the St. Jones River in 1991. The University of Delaware tested another portion of it to the east of the NPS study in 1993. Both the UDCAR and the NPS studies recommended the site as potentially eligible for the NRHP.

The 1995-evaluation of the Lisbon Area A component of the site by the Delaware Department of Transportation found that it was not eligible for the National Register. Using the Delaware guidelines, DelDOT concluded that the information potential of that portion of the site was too low for eligibility to the NRHP, based on the low artifact density and lack of integrity in Area A. No further work was recommended in Area A of the Lisbon Tract.

In 2004, Phase II investigations were conducted at Site 7K-D-26 by URS Corporation, Inc. for Dover AFB (Furgerson and Wall 2004). This project was to include a review of previous studies at the Lisbon Tract, and excavations within the eastern portion of the site. The report on the results of those investigations recommended that the historic component was not eligible for the NRHP. The prehistoric component was recommended as eligible for listing on the NRHP. The SHPO concurred with those recommendations in a letter dated 26 August 2005.







#### 4.0 ENVIRONMENTAL CONSEQUENCES

This section of the EA provides an analysis of the environmental consequences. Table 4-1 provides a summary of the environmental consequences associated with implementing those alternatives carried forward for detailed analysis.

**Table 4-1. Alternatives Comparison Matrix Summary**

Resources/Issues (Threshold Criteria)	Alternatives		
	Proposed Action	Alternative 1	No Action
Air Quality ( <i>emissions above de minimis</i> )	No	No	No Change
Transportation ( <i>level of service</i> ) ( <i>pedestrian circulation</i> )	No Change	No Change	No Change
Water Resources ( <i>within the 100-year floodplain</i> ( <i>exceeds stormwater capacity</i> ) ( <i>wetland impacts</i> ) ( <i>groundwater within construction limits</i> )	Yes No Minimal No	Yes No Minimal No	No Change
Geology and Soils ( <i>change in topographic relief</i> ) ( <i>soil capability loss</i> )	No No	No No	No Change
Socioeconomics and Environmental Justice ( <i>change in personal income or employment</i> ) ( <i>minority and/or low-income populations affected</i> )	No No	No No	No Change
Hazardous Materials and Wastes ( <i>hazardous materials onsite</i> ) ( <i>release of hazardous materials</i> )	No No	No No	No Change

### 4.1 Air Quality

Impacts to air quality would be considered significant if project emissions exceeded the NAAQS, exceeded the *de minimis* exemption levels, or exposed sensitive receptors to increased pollutant concentrations. Potential emissions for the ozone precursor pollutants, NO<sub>x</sub> and volatile organic compounds (VOC), were estimated for the General Conformity Rule applicability analysis.

#### 4.1.1 No Action Alternative

Under the No Action Alternative, the St. Jones River stream bank would remain unchanged. Therefore, no changes to the current air quality would occur if this alternative was selected.

#### 4.1.2 Proposed Action – Combination of Soft and Hard Stabilization Technologies

Implementation of the Proposed Action would have temporary, minor impacts to the local air quality. Fugitive dust (PM<sub>10</sub>) from ground-disturbing activities, and combusive emissions from equipment used in implementation of stabilization technologies would be generated during the Proposed Action. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. Emissions from activities associated with site clearing, grading, and from vehicular traffic moving over the disturbed site would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. A conservative estimate of PM<sub>10</sub> emissions for construction and demolition activities provided by the USEPA is 1.2 tons/acre/month of activity (USEPA 1995). The project area would be approximately 3.5 acres and expected to last for up to three months (12.6 tons of PM<sub>10</sub>). Watering exposed soil at the beginning and end of each day according to BMPs would decrease the amount of fugitive dust by as much as 50 percent released into the atmosphere from construction operations and trucks driving on unpaved surfaces. Therefore, impacts from fugitive dust are expected to be minimal and temporary.

Emissions from the proposed construction activities is expected to be minimal, short-term, and below *de minimis* values (Table 4-2). Therefore, the General Conformity Rule does not apply to the Proposed Action. The associated emissions would be considered insignificant and not affect the local air quality, therefore, a Record of Non-Applicability would be prepared for the proposed project.

**Table 4-2. Emission Estimates (tons per year).**

	<b>CO</b>	<b>VOC</b>	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>
Construction Equipment Exhaust	2.24	0.30	5.47	0.59
Worker Vehicles - Commuting	0.75	0.05	0.05	0.00
<b>TOTAL</b>	<b>2.28</b>	<b>0.30</b>	<b>5.47</b>	<b>0.59</b>
<i>de minimis</i> levels	N/A	25	25	N/A

#### **4.1.3 Alternative 1 – Stabilization with Soft Technologies**

Implementation of Alternative 1 would have similar impacts as those described for the Proposed Action. As with the Proposed Action, emissions would be considered temporary and below *de minimis* levels.

#### **4.1.4 Cumulative Impacts**

Implementing the No Action, Proposed Action, or Alternative 1 would not result in cumulative impacts. Emissions associated with the implementation of stabilization technologies would be minor and temporary. The potential emissions in the immediate area would cease once construction was complete and would not change the air quality for the region.

### **4.2 Transportation**

Impacts to transportation would be significant if traffic counts, roadway design and geometry, or signalization, changed the capacity and efficiency of the roadway access and transportation system at Dover AFB.

#### **4.2.1 No Action Alternative**

Under the No Action Alternative, none of the proposed construction activities would occur and baseline traffic conditions would remain unchanged.

#### **4.2.2 Proposed Action – Combination of Soft and Hard Stabilization Technologies**

Implementing the Proposed Action would have short term, minor impacts on the roadway system at Dover AFB during construction activities. Traffic would not need to be rerouted to avoid construction activities and there are no long-term benefits of the Proposed Action pertaining to transportation. Transportation systems off the base would not be impacted by the proposed construction activities; consequently, there would be no change to planning assumptions or recommended roadway improvements in the vicinity.

### **4.2.3 Alternative 1 – Soft Stabilization Technologies**

Similar to the Proposed Action, implementing Alternative 1 would have short term, minor impacts on the roadway system at Dover AFB during construction activities, would not have any long term benefits and not impact transportation systems off the base.

### **4.2.4 Cumulative Impacts**

The implementation of stabilization technologies as outlined in the Proposed Action or in Alternative 1 would not result in cumulative impacts to future development.

## **4.3 Water Resources**

Impacts to water resources would be considered significant if implementation of the action resulted in changes to water quality or supply, threatened or damaged unique hydrologic characteristics, or violated established laws or regulations.

### **4.3.1 No Action Alternative**

Under the No Action Alternative, there would be no change to the water resources at Dover AFB. The proposed construction activities would not occur; therefore, no impacts would occur to water resources in the project site. However, by not undertaking any action, natural erosion will continue to occur and eventually exposing the contents of the landfill leading to the introduction of refuse and its contaminants to the St. Jones River.

### **4.3.2 Proposed Action - Soft and Hard Stabilization Technologies**

Implementing the Proposed Action would not impact groundwater resources since the proposed construction activities would not be conducted below three feet of the ground surface, well above the reported groundwater elevation in the vicinity. The Proposed Action could result in minor impacts to water quality from surface water runoff following storm events during construction activities; however BMPs outlined in the Sediment and Stormwater Management Plan prepared for the action would be implemented to minimize impacts from erosion and sedimentation.

The installation of the combined stabilization technologies will ensure erosion will not expose the landfill contents decreasing the potential for exposing refuse and other landfill contents to the St. Jones River. The proposed action will also ensure floodplain issues are implemented so the stabilization technologies do not decrease the ability of the river to channel the necessary water down-stream and ultimately to the Atlantic Ocean.

Implementing the Proposed Action would result in enhancing the wetlands which exist along the river bank. Dover AFB would be responsible for contacting and reporting responses from U.S. Fish and Wildlife Service, National Marine Fisheries Service, State Historic Preservation Office, and DNREC prior to submitting a permit request to the USACE.

#### **4.3.3 Alternative 1 - Soft Stabilization Technologies**

Implementing Alternative 1 is expected to have the same impacts to surface water quality and stormwater management as the proposed action. With this alternative, a tropical system or tidal surge could void the stabilization technologies and return the area to its existing state allowing natural erosion to continue to impact the landfill and cultural resources. As with the proposed action, coordination with the Philadelphia District, USACE Regulatory Office to obtain an approved wetland permit is necessary.

#### **4.3.4 Cumulative Impacts**

Implementing the Proposed Action, Alternative 1, or No Action Alternative would not result in cumulative impacts to water resources. The potential short-term impacts to water quality during construction activities would cease upon completion of the project. The implementation of the proposed action will have positive future impacts to the St. Jones River while maintaining the integrity of the cultural resources in the vicinity.

### **4.4 Geology and Soils**

Impacts to geology and soils would be considered significant if the proposed construction activities altered aquifer recharge zones or were located near faults or other geological hazards. Impacts to soils can occur if erosion control measures are not properly implemented.

#### **4.4.1 No Action Alternative**

Under the No Action Alternative, there would be no change to the geology and soils at Dover AFB. The proposed construction activities would not occur; therefore, no impacts would occur to these resources in the project site.

#### **4.4.2 Proposed Action - Soft and Hard Stabilization Technologies**

Implementing the Proposed Action would not significantly affect geologic features underlying Dover AFB. Ground disturbance would occur during construction on undeveloped land along the St. Jones River bank. Construction activities involving ground disturbances would include

grading and clearing; however, disturbances would not occur at depths that could potentially impact aquifer recharge zones.

Soils would be disturbed during construction activities on approximately 3.5 acres associated with the Proposed Action. However, erosion and sedimentation control measures such as silt fences, straw bales, sediment traps, application of water sprays, cut and fill balancing, and hydroseeding disturbed soils would be implemented to minimize impacts to soils. Therefore, only temporary and minor impacts to soils would be expected as a result of implementation of the Proposed Action.

### **4.4.3 Alternative 1 - Soft Stabilization Technologies**

Similar to the Proposed Action, implementing Alternative 1 would not result in significant impacts to geology and soils at Dover AFB. Soils would be disturbed during construction activities on approximately 3.5 acres. However, BMPs would be implemented during construction to minimize impacts to soils associated with grading and clearing activities as specified for the Proposed Action. Therefore, only temporary and minor impacts to soils would be expected by implementing Alternative 1.

### **4.4.4 Cumulative Impacts**

Implementing the Proposed Action, Alternative 1, or No Action Alternative would not result in cumulative impacts to geology and soils at Dover AFB. The proposed construction activities or similar future actions would not affect geologic features because the activities do not require deep subsurface excavation on the undeveloped land. Future development of the site is unlikely because of its location and environmental sensitivity.

## **4.5 Socioeconomics and Environmental Justice**

Socioeconomic resources would be impacted if the action resulted in a change to the population, employment, or income potential in the ROI. The ROI is not considered an area with a concentrated minority population or poverty area; therefore, there are no environmental justice concerns.

### **4.5.1 No Action Alternative**

Implementing the No Action Alternative would not change employment opportunities or change the population growth rate, and there would be no impacts to the social or economic

characteristics in the ROI. Under the No Action Alternative, there would be no construction of new parking lots, access roads, and associated developments at Dover AFB that could generate socioeconomic impacts.

#### **4.5.2 Proposed Action - Soft and Hard Stabilization Technologies**

Implementing the Proposed Action would not result in significant impacts on the demographics, employment, or income potential in the ROI. The proposed construction activities would likely be conducted by outside contractors with employees from within the ROI. However, the economic benefits would be minor and short-term compared to regional economic generation. Since this alternative would not create any new employment opportunities, reduce the current number of employment opportunities, or change the population growth rate, there would be no anticipated impacts to the social or economic characteristics of the ROI.

#### **4.5.3 Alternative 1 - Soft Stabilization Technologies**

Similar to the Proposed Action, implementing Alternative 1 would not result in significant impacts on the demographics, employment, or income potential in the ROI. The construction of discontinuous parking lots would involve a similar level of effort as the Proposed Action. Similarly, the economic benefits would also be minor and short-term with no anticipated impacts to the social or economic characteristics of the ROI.

#### **4.5.4 Cumulative Impacts**

Implementing the Proposed Action, Alternative 1, or No Action Alternative would not result in cumulative impacts to socioeconomic resources. The short-term economic input to the ROI from the proposed construction of new parking lots, access roads, and associated developments would be negligible compared to the regional economic generation. No long-term impacts would be expected. In addition, the proposed construction activities would not generate future revenue or employment opportunities at Dover AFB.

#### **4.6 Hazardous Materials and Wastes**

Hazardous materials and wastes management at Dover AFB would be impacted if the construction activities resulted in a release of these materials into the environment. Potential releases to the air, water or soil that exceed federal and state guidance would be considered significant.



There may be residual contaminants in the soil that may not allow for unrestricted disposal of excavated soils. These contaminants may include pesticides, such as chlordane and heptachlor, several semi-volatile organic compounds, and metals such as lead and chromium. Any excavated soil that is not suitable for use on site would be stockpiled on site and tested to determine proper disposal requirements. Each stockpile of soil would be analyzed for the following items:

- a. Full TCLP (toxicity characteristic leachate procedure) to include ignitability, reactivity, corrosivity, metals, organics, pesticides and herbicides;
- b. Total Petroleum Hydrocarbons (TPH);
- c. Polychlorinated Biphenyls (PCBs);
- d. BTEX (Benzene, Toluene, Xylene, and Ethyl benzene); and
- e. Percent Solids.

The sample results would be submitted to Civil Engineering Squadron, Asset Management (CES/CEA) for interpretation. CEA will use the hazardous waste limitations in the code of federal regulations when evaluating the TCLP results to determine if the soil must be disposed of as hazardous waste. The other remaining parameters are required for disposal at a Delaware Solid Waste Authority (DSWA) facility and have associated DSWA limitations. Those limitations will be compared to the results to determine if the soil can be disposed of within the State of Delaware, only if the soil is not a hazardous waste. If soil is hazardous waste, it would be disposed of accordingly at a disposal facility permitted to accept hazardous waste. If the soil is non-hazardous waste but does not meet the limitations of the DSWA, the soil would be disposed of at a disposal facility permitted to accept such waste.

Within the project area exists an environmental restoration site, Site LF26, which is located on the west side of the base at the edge of the St. Jones River behind the base housing area. The site is approximately 2 acres in size and was used in the early 1960s for the disposal of general refuse, clearance debris such as trees/branches, and construction rubble. Earlier, it had been a sand and gravel pit which was later filled with refuse to a depth of about 8 ft. When disposal activities ceased, the site was covered with local soil and seeded with grass. The site is currently maintained as grass-covered baseball playing fields. A Remedial Investigation was conducted at LF26 in 1993/1994 under the Air Force Installation Restoration Program. No removal or remedial actions have been conducted at this site. The human health risk assessment for this site identified no unacceptable risks from contaminants at the site. However, this conclusion is based

on the assumption that land use at the site will be limited to industrial use or its current recreational use as ball fields. Thus, a limited response action was necessary to ensure the permanence and reliability of the land use assumptions.

In 2006, a Record of Decision (ROD) was signed by the Air Force and the Environmental Protection Agency for 21 sites, including LF26. The selected remedy for LF26 is Land Use Controls (LUCs). The LUCs provisions for LF26 as documented in the ROD are to:

- Restrict land use at LF26 to commercial/industrial uses or to its current recreational use as a baseball field.
- Prevent non-industrial exposure to landfill contents.
- Prevent drilling of wells or other ground-disturbing activities that could penetrate or otherwise disturb the landfill contents.
- Maintain the soil and grass cover at LF26 to prevent exposure to landfill contents.

In 2007, a routine survey noted that natural river erosion had caused exposure of some landfill contents at the edge of the St. Jones River.

#### **4.6.1 No Action Alternative**

Implementing the No Action Alternative would result in no impacts from hazardous materials or wastes since no construction activities would occur. Existing levels of hazardous materials or wastes from ongoing operations would be maintained and disposed of in accordance with applicable regulations. However, the no-action alternative does not address the exposure of the landfill contents. The No-Action Alternative will continue to allow natural erosion to expose the landfill contents leading to further contamination if those contents enter the St. Jones River.

#### **4.6.2 Proposed Action - Soft and Hard Stabilization Technologies**

Implementing the Proposed Action could consume hazardous materials and/or generate hazardous wastes. The potential impacts would be short-term, approximately six months during

construction activities. Hazardous materials used for construction activities would likely include fuels, paints, glues, and asphalt materials. Most of these materials would typically be consumed in their entirety and very little waste generated for disposal. As a result, no large amounts of construction-related hazardous materials would be expected, and any hazardous wastes generated during the activities would be disposed of in accordance with applicable federal, state, and local regulations. No long-term impacts would be expected because use of hazardous materials and generation of hazardous wastes would cease after construction activities. Therefore, there would be no impact from release of hazardous materials and wastes to the environment.

The proposed action would also provide for stabilization of the river banking ceasing the natural erosion that is exposing the landfill contents.

### **4.6.3 Alternative 1 - Soft Stabilization Technologies**

Similar to the Proposed Action, implementing Alternative 1 could consume hazardous materials and/or generate hazardous wastes. However, no large amounts of construction-related hazardous materials or wastes would remain after construction activities and they would be disposed of in accordance with applicable federal, state, and local regulations. Therefore, there would be no impact from release of hazardous materials and wastes to the environment.

Alternative 1 would provide for stabilization of the river banking halting the erosion responsible for exposing the landfill contents, however, the stabilization in this alternative is not as weather resistant and could be voided if a tropical system or tidal surge occurred in the vicinity of the project area returning the river banking to its existing conditions.

### **4.6.4 Cumulative Impacts**

Implementing the Proposed Action, Alternative 1, or No Action Alternative would not result in cumulative impacts from hazardous materials and wastes. Use of these substances would cease after the proposed construction activities. Future use of hazardous materials and wastes for planned development on Dover AFB would be handled and disposed of according to applicable federal, state, and local regulations. The proposed action would provide positive long term benefits by stabilizing the river banking and ensuring the contents from the landfill remain stationary and don't enter the St. Jones River.

#### **4.7 Biological Resources**

According to the 1993 and 1998 Biological/Ecological Inventory and subsequent documentation from the Delaware Natural Heritage and Endangered Species Program (DNHP) dated 17 Jan 06, there are no known federally listed threatened or endangered species, federally listed or candidate species for animals or plants present at Dover AFB that require protection and/or management. The Delaware Division of Fish and Wildlife developed a Comprehensive Wildlife Conservation Strategy (CWCS) for determining animal Species of Greatest Conservation Need (SGCN). The SGCN list is divided into Tier 1 and Tier 2 criteria. Tier 1 species are those that are most in need of conservation action in order to sustain or restore their populations. They are the focus of the CWCS, which is based on analyzing threats to their populations and their habitats, and on developing conservation actions to eliminate, minimize or compensate for these threats.

Tier 2 species are also in need of conservation action, although not with the urgency of Tier 1 species. Their distribution across the landscape will help determine where CWCS conservation actions will be implemented on the ground. Only the mud sunfish was noted in the proposed project area. However, after talking to the individuals preparing to update the Dover AFB biological/ecological inventory, the probability of the mud sunfish still being present in the proposed project area is very minimal. Impacts to this biological resource would be considered significant if the proposed construction activities altered existing habitats preventing any species from returning after project completion.

##### **4.7.1 No Action Alternative**

Implementing the No Action Alternative would result in no impacts in existing habitats. However, those habitats would continue to degrade due to erosion of river banking decreasing potential for various species to exist at the proposed project location

##### **4.7.2 Proposed Action – Soft and Hard Stabilization Technologies**

Under the proposed action, the potential exists for various additional species to thrive in the project area. With the stabilization of the river bank with soft stabilization technologies, additional species can occupy the area having a positive impact on biological resources.

### **4.7.3 Alternative 1 – Soft Stabilization Technologies**

Similar to the proposed action, the potential exists for various additional species to thrive in the project area. With the stabilization of the river bank with soft stabilization technologies, additional species can occupy the area having a positive impact on biological resources.

### **4.7.4 Cumulative Impacts**

Implementing the Proposed Action, Alternative 1, or No Action Alternative would not result in cumulative impacts to biological resources. With the proposed action and alternative 1, additional species may occupy the area resulting in a positive impact for the future.

## **4.8 Coastal Zone Management**

Impacts to coastal zone management would be considered significant if the proposed construction activities altered coastal resources.

### **4.8.1 No Action Alternative**

Under the no-action alternative, the coastal zone regulations would continue to apply. However, with no action, the natural erosion will continue to occur threatening to expose the landfill, which if contents were exposed and interacted with the St. Jones River, the potential for contamination of the river from refuse exists endangering down-stream aquatic life.

### **4.8.2 Proposed Action- Soft and Hard Stabilization Technologies**

Implementing the proposed action will require the submittal of a negative impact coastal zone determination to be prepared and submitted to the appropriate regulators. The project will ensure natural erosion does not allow the degradation of cultural resources and to expose the contents of a landfill, thus having a positive impact on the surrounding coastal zone.

### **4.8.3 Alternative 1 – Soft Stabilization Technologies**

Similar to the proposed action, this alternative will require the submittal of a negative impact coastal zone determination for the appropriate regulators. The project will ensure natural erosion does not allow the degradation of cultural resources and to expose the contents of a landfill, thus having a positive impact on the surrounding coastal zone. However, with this option, the potential exists for tropical system, tidal surges to void the stabilization and return the area to the existing conditions.

#### **4.8.4 Cumulative Impacts**

Implementing the Proposed Action, Alternative 1, or No Action Alternative would not result in cumulative impacts to coastal zone management. With the proposed action and alternative 1, regulatory concurrence is needed and subsequent projects would require similar approval.

#### **4.9 Cultural Resources**

Two cultural resource sites are identified in the Dover AFB ICRMP that traverse the St. Jones River, Dover AFB property and the proposed stabilization area. Site 7K-D-2 is located on the southern portion of the proposed area to be stabilized and may or may not be immediately impacted by the areas proposed for stabilization. Site 7K-D-26 traverses the entire northernmost area of the proposed river banking area. These sites are identified in the Dover AFB ICRMP, however, there is no definitive decision as to the integrity of the site and its ultimate eligibility for the listing on the National Register of Historic Places. The intent of the proposed action is not determine the site's eligibility, but to provide stabilization to the river banking to ensure no subsequent erosion occurs degrading the site's condition.

##### **4.9.1 No Action Alternative**

Under the No Action Alternative, Site 7K-D-26's condition would continue to degrade through erosion of the exposed soil portions on the site's river banking. In time, the potential loss of information may not be truly known due to erosion.

##### **4.9.2 Proposed Action- Soft and Hard Stabilization Technologies**

With the proposed action, the installation of stabilization technologies will ensure subsequent degradation will not occur to the cultural resources. During the design of the proposed action, the impact to cultural resources was evaluated and coordinated with the Delaware State Historic Preservation Office. It was determined the design for the proposed action and the ultimate installation will have no to minimal impact on cultural resources.

##### **4.9.3 Alternative 1 - Soft Stabilization Technologies**

Similar to the proposed action, the installation of different stabilization technologies will ensure subsequent degradation will not occur to the cultural resources. However, with all soft

stabilization technologies, the potential exists for future degradation should a large tidal surge from tropical systems void the effectiveness of the soft stabilization technologies.

### **4.9.4 Cumulative Impacts**

Implementing the Proposed Action or Alternative 1 would not result in cumulative impacts on cultural resources. The installation of stabilization technologies would ensure no further degradation of the cultural resources. However, with the no action alternative, in time, erosion would have a direct impact on the cultural resources and decrease the integrity of the site.

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**5.0 LIST OF PREPARERS**

<b><u>Name/Title</u></b>	<b><u>Expertise/Experience</u></b>	<b><u>Involvement</u></b>
<i>Steve Seip Environmental Quality Chief</i>	<i>16 years</i>	Preparer

## LIST OF PREPARERS

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## **6.0 DISTRIBUTION LIST AND AGENCIES AND INDIVIDUALS CONTACTED**

### **6.1 Distribution of the Draft Environmental Assessment**

As part of CEQ regulations (§1503.1), public comments on the Draft EA are invited. This process helps decision makers and the public to understand and have input on the environmental effects of federal actions. This EA was distributed to the Dover Public Library (302/736-7030; 45 S. State St. Dover, DE 19901) for comment during the public review period.

The NEPA and CEQ regulations require that the environmental effects of Proposed Action and alternatives be considered in the decision-making process. Preparation of this EA must precede final decisions regarding the action, and the document must be available to inform decision-makers and the public of potential environmental consequences/impacts. Therefore, public notice of this EA has been provided in the Delaware State News (Appendix A). Additionally, two site visits were conducted to gather information from installation personnel and record field observations on existing conditions.

Dover AFB has coordinated with Mr. Kevin E. Faust, Philadelphia District, U. S Army Corps of Engineers, regarding wetland permitting requirements. A Nationwide Permit would be authorized for the Proposed Action.

Dover AFB has also coordinated with Ms. Joan Larrivee and Mr. Craig Lukezic from the Delaware State Historic Preservation Office and individuals from the U.S. Environmental Protection Agency and the Delaware Department of Natural Resources and Environmental Control.

### **6.2 Comments and Responses to Comments**

Comments received from federal agencies and/or members of the public during the public comment period will be incorporated in the Final EA.

## DISTRIBUTION LIST AND AGENCIES AND INDIVIDUALS CONTACTED

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